

## A new clam on the beaches

by Matt Bowser



*A bucket of soft-shell clams, an exotic species from the East Coast, harvested from an east-side Cook Inlet beach this past New Year's Day (credit: Matt Bowser/KNWR).*

This last June while my family was out at the local beach, my son brought me a clam he had found in the mud flats, a clam of a kind unfamiliar to me. At home that evening, I identified it as a soft-shell clam (*Mya arenaria*), an exotic species.

I had no idea that there were non-native clams in our area, but I learned that this was not news. Soft-shell clams were first documented on the Kenai Peninsula in 1999. By 2006, soft-shells were already a dominant species in mud flats in the area. At least one clammer was targeting them in Kachemak Bay by 2011.

Soft-shell clams are native to the Atlantic coast of North America from North Carolina to Labrador and to the North Pacific from Korea to the coast of Alaska on the Bering Sea. In the 1870s, they were accidentally introduced to the San Francisco Bay area in a shipment of oysters transplanted from the Atlantic. Soft-shells had replaced native clams in the Bay area before the end of the 19th century. Through a combination of natural dispersal and intentional transplanting, soft-shells spread rapidly on the west coast, reaching southeast Alaska by the 1940s (<http://bit.ly/1fWWcdy>).

Alaska is not the only place that these clams are invading. Vikings brought soft-shell clams across the Atlantic around 1300 A.D. to Europe where they are

now widespread. There, soft-shells have continued to invade new areas in recent years, reaching high densities, decreasing abundance of native clams, and filtering enough algae to substantially reduce chlorophyll concentrations in seawater.

Given that soft-shell clams have made it to Cook Inlet and are already abundant here, I was now curious about the consequences of this invasion. Do they compete with native clams for space or food? What are the effects of this species on other wildlife? Will there be harvestable populations of soft-shell clams for me and others to exploit? Might a new clam fishery in Cook Inlet increase human use and pressures on Kenai Peninsula beaches?

Soft-shell clams do appear to be competing with native clams in some locations, at least for habitable space in mud flats where this species is often dominant. Measured densities of soft-shells in Cook Inlet reached 11 clams per square meter at Katmai National Park on the other side of Cook Inlet. For comparison, densities of harvestable razor clams vary from about 0.5 to 5 clams per square meter at Clam Gulch and Ninilchik beaches. Native Baltic macomas, false soft-shell clams, and other species had already occupied the mud flats in which soft-shells are now abundant and must be experiencing some level of competitive pressure from this new-comer.

Soft-shell clams are probably not competing for space very directly with other clam species commonly targeted by people in Cook Inlet. Razor clams, butter clams, and littleneck clams generally occupy more coarsely-grained substrates than soft-shells.

Other wildlife may benefit from this invasion. Many animals prey upon soft-shell clams, including crabs, flatfish, shorebirds, diving ducks, and sea otters. A study at Hallo Bay, Katmai National Park found that soft-shell clams were the primary species consumed by brown bears in mud flats, an important food source for bears in the spring until salmon start appearing in the streams.

As to usefulness by people, soft-shell clams have long been harvested on the east coast of North America. This species supports a 10 million pound per year commercial fishery in Maine alone. Called “steamers”

in New England, soft-shells are served as an integral part of the New England clambake.

As word gets out about this species' presence on the Kenai Peninsula, more clambers may target them. If you have visited Nilchik or Clam Gulch beaches during extremely low tides, you know that the razor clam fishery can be extremely popular (up to 1,367 clambers at Nilchik beach on one low tide). I imagine that the soft-shells might attract at least some clambers to our mud flats, increasing human use on these beaches.

My next question was whether or not there was a harvestable population where my son had initially found the soft-shell. On the -5.1 ft. tide this New Year's Day, my brother-in-law and I slogged out onto the mud flats to find out.

We turned up nothing but worms for much of the tide, but eventually we found beds where the substrate was apparently more stable and obviously more productive than the surrounding mud, with many dimples from worms and clams. We had some success, eventually bringing home 24 eating-size soft-shells. While this small yield failed to justify the effort we expended to get them, I was more than satisfied to have learned more about soft-shell clams. To learn about local marine clams, download Dennis Lees' *Guide to Intertidal Bivalves in Southwest Alaska National Parks* (<http://bit.ly/1aHvoJQ>).

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